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(54) Title: PRODUCT FOR FOOD FOR THE SOIL, PLANTS, ANIMALS, AND HUMANS

(57) Abstract

Biochemical procedure for preparing elements for the soil, for plants, for animals, and for humans, characterized by: the starting material is a cultivated symbiont element or a culture broth such as bacteria or mold, from which element is extracted a product with enzymatic powers with which are autolysated the raw materials which will serve either as foods or as rounding-out elements for foods, whereby to the whole can be added ions or colloidal or pseudocolloidal particles in nearly inverse proportions with regard to the respective atomic weights in order to re-establish biochemical equilibrium and according to the purpose for which the food is intended.

Product for Food for the Soil, Plants, Animals, and Humans

This invention relates to a product that is intended to round out foods for cultivated soil, plants, animals, and humans.

The object of this invention is also a biochemical procedure by means of which said product can be obtained, in the various forms that are called for and are most convenient in the various cases of food or rounding out of food.

It is well known that every species or group of species has microflora of specific composition in its rhizosphere, whereby said microflora may undergo mutations at the same time as the plant develops. In addition, around the roots are zones with microflora that are qualitatively and quantitatively diverse, but the more specific flora is that which develops on the surfaces of the roots. In the layer about 0.5 mm thick that is right around the roots, there develops a microflora which is rather diverse in composition. Finally, in the layer about 2-5 mm thick is a diverse and less abundant rhizospheric flora. The rhizosphere plays a very important role in the processes that take place in the soil and in the development of the plants. In this area the nutrient substances of the soil undergo more or less major changes. In addition, many microorganisms of the rhizosphere have a direct effect on the nutrition and development of the plants. These microorganisms include nodular bacteria, non-

parasitic nitrogen-fixing microorganisms (Azotobacter and Clostridium), and a certain number of other bacteria that secrete biotic substances. In particular, the vitamin content is much higher in the rhizosphere than in the rest of the soil.

Some bacteria produce growth factors such as auxins, which accelerate the development of the plant. Consequently, the microorganisms of the rhizosphere that produce these substances exert a stimulating action on plant development. At the same time, the rhizosphere contains numerous antagonistic bacteria and antibiotic-producing bacteria, particularly mycolytic bacteria, that destroy the mycelia of fungi and thus protect the plant against fungal diseases. The specific microorganisms develop not only on the surfaces, but also in the roots of the plants and particularly in the root hairs.

Similarly, the applicant has found that for each species of plant and animal, including the human species, there is a specific microorganism which can be cultivated by the conjunctival tissue and which lives in symbiosis with its host, for which it procures the elements that are necessary for assimilating food, in order to transform the latter into new cells that have the same specific nature as the host.

We can mention, for example, that E. coli is the "symbiont" of man, B. subtilis is that of the pig, Cladosporum herbarum is that of barley, etc. The elements that are necessary for assimilating food can be obtained in vitro and can be used for the industrial fabrication of specific products for every species of animal, including humans, to be employed as a food supplement.

These vital elements are absolutely necessary for the transamination in vivo of proteins and would also condition the synthesis, distribution, and use in vivo of vitamins, hormones, and enzymes, as well as viruses, which are nothing more than nucleoproteins.

This would therefore involve Unknown Growth and Assimilation Factors, which in recent years have been sought by specialists in human and animal nutrition.

In addition, the transformation of microbic cultures into mycelic cultures, when accomplished by appropriate means, makes it possible to obtain the specific mold that corresponds to each symbiont. By way of indication, it is known that the cultivation of the symbiont of man (E. coli) gives rise to a penicillin that can come in different genetic forms.

From the cultivation of this mold, it is possible to extract the element of life that is particular to each species of plant and animal; this element is the one that has given rise to said mold, which is also characteristic of each species.

These therefore include specific "biozymes," and the "yeast" form would be nothing more than an intermediate stage between the symbiont of a given species and its specific mold.

The applicant has also noted that, in order for these specific "biozymes" to be able to exert their effect, it is necessary that they operate in "ground" that is endowed with perfectly balanced mineral nutrition. This mineral nutrition leads to the plastic formation of the plant, animal, and human cells (a function of the anions) and controls the colloidal

dispersion of the elements that protect the cytoplasm, i.e., the more or less liquid substance that surrounds the cell nucleus (the role of the cations), regardless of the catalytic action of all these elements and of the function of the cations in transporting and utilizing anionic elements, as well as the use and synthesis, as done by the living organisms of the soil microfauna and microflora, of amino acids, hormones, vitamins, and enzymes.

The phenomena of assimilation and disassimilation are the result of a state of isoelectric equilibrium between the intracellular medium and the environment, particularly between the cellular medium and the soil (which can be considered an effective colloidal "gel") for plants, and between the intracellular medium and the "humoral" ground in the case of animals and man.

Any irregularity or phenomenon of shortage of the soil and the humoral ground is invariably reflected in the living conditions of the plants, animals, and humans, and consequently the isoelectric conditions (measured as "pH" values) constitute an essential factor for the establishment and preservation of the states of equilibrium that are required in order for life phenomena to deploy and develop normally.

For example, the intracellular pH of plants will be very close to the isoelectric value of the soil. This observation explains, for example, why potatoes cannot be grown in alkaline soil or in soil with high pH for more than one or two years

without developing such manifestations of degeneration as to cause the plant to disappear.

Under natural conditions of plant life, the disappearance or loss of balance in the soil of certain mineral elements, and particularly the calcium-magnesian alkaline-earth elements, causes certain plant species to disappear and other species to appear that are better suited to the new environment, i.e., to the modified conditions of isoelectric equilibrium.

Under artificial conditions of plant life, owing to the use of methods of intensive cultivation based on incomplete mineral fertilizers, there are inevitably manifestations of degeneration in the cultivated plants (wheat, rice, barley, maize, beets, grapes, etc.) and sensitization to sporophytic diseases or diseases of other etiology.

In human and animal feeding, the consumption of plants that suffer from conditions of shortage or of animal foods that exhibit corresponding conditions, which result primarily from a mineral imbalance in the soil, gives rise to a rapid change in living conditions and leads to signs of disruption of nutrition and, consequently, of morbid states owing to the shortage or excess of certain substances (e.g., potassium or nitrogen).

Studies that have been done on the elements of the humoral ground of man and animals (blood serum, saliva, urine) have made it possible to discern a balance in the acid/base ratio which, as in the case of an imbalance in the calcium-potassium/potassium-sodium ratio in plants, represents a factor that produces a marked sensitivity to bacterial and viral diseases.

It has also been noted that bacteria and viruses (which are nucleoproteins at the edges of the living world) require for their development special environmental conditions. The applicant has found that, in general, an alkaline medium, i.e., a medium of elevated pH, favors their development and that an imbalance in the monovalent and bivalent ions of alkaline and alkaline-earth metals constitutes the most favorable condition for the development of pathogenic microorganisms and viruses.

Thus, in the majority of the cases, the mineral imbalance of human and animal nutrition is due to the use of only the elements nitrogen, phosphorus, and potassium, without the necessary correctives and supplements that round out the ratios between the atomic weights.

In addition, the applicant has found that amino acids (proteins) and, consequently, the component elements of viruses (nucleoprotein complexes) exhibit the nature of ampholytes and thus have an acidic or basic function depending on the reaction of the environment. The intracellular pH will thus be very close to the isoelectric point, which is specific for each ampholyte. This point therefore is the critical phase in which the ampholyte will have a minimum solubility level and maximum instability.

This critical point constitutes the factor which determines the nature of reversibility and irreversibility of a reaction. If the humoral characteristic comes to this point modified by a favorable pH modification, modifications are obtained in intracellular life, in the presence of certain enzymes, natural vitamins, hormones, and antibiotics, and the synthesis or

disaggregation in vivo of nucleoprotein complexes is favored, hampering or promoting the development of certain enzymes and bacteria both in the soil and in plants, in animals and man.

All of this depends on the regulatory action exerted by the acid (DNA).

The specific object of this invention, which constitutes a practical application of the above-indicated observations by the applicant, is the implementation of a procedure for feeding or rounding out the feeding of the soil, which is understood as the living environment of plants and man, able to prevent the manifestation of the above-mentioned alterations and irregularities of the vital phenomena of the characterizing part of Claim 1.

The products made using this procedure are also part of the object of this invention.

In general, the products that are the object of this invention are essentially composed of a mixture of anionic elements (such as nitrogen, sulfur, phosphorus, etc.) in colloidal or pseudo-colloidal form, and of cationic elements (potassium, sodium, calcium, copper, zinc, magnesium, etc.) also in colloidal or pseudo-colloidal form; this mixture is able to round out the values of the atomic weights of the elements in question so as to bring the environment into a state of equilibrium by introducing the mineral elements, the shortage of which is found in the additive or nutrient substances normally supplied to the soil, plants, or animals.

In particular, said anionic and cationic elements are present in the mixture in the form of pure metals in the colloidal state, and consequently this product manifests itself in turn as a colloidal or pseudo-colloidal solution and, in this primary form, can be used to feed the soil, plants, animals, and humans.

This product can be utilized even more advantageously as a means of enriching or rounding out ground for cultivating microorganisms or micro-fungi (fungi), whereby such stocks can thus yield antibiotic and enzyme products that have well-defined properties depending on the minerals used and their relative ratios.

In the case of rounding out the soil and animal feed, the product that is the object of this invention can be associated with a mycelium of antibiotics or one or more microbe cultures as indicated above, whereby the whole can be vacuum-dried and pulverized. The nutrient elements of these cultures are composed of protein or other substances, based on carbohydrates, in the form of simple products (tryptophan, methionine, glucose, maltose, etc.) or, even better, complex products (blood, milk casein, various panels, leguminous plants, cereals, etc.). In the presence of a filtrate of a microbial or fungal culture, these products are hydrolyzed or autolyzed: preference is given to the use of the lysate of the microorganism that is to be cultivated or that of the specific mold of said microorganism and the degradation products of its host; pig blood for B. Subtilis, total barley meal for Cladosporum herbarum, etc.

It should be noted that the most suitable mixtures are those which, before the hydrolysis of the substances used, titrate no more than 15% carbohydrates.

The procedures used for cultivation are the current procedures, for both cultivation down in the soil and on the surface, but always in closed and aseptic receptacles, and the procedure of the invention is as follows: the starting material is a symbiont element that is cultivated from a culture broth such as bacteria or mold, from which element is extracted a product with enzymatic powers with which are autolyzed the raw materials that will serve both as foods and as rounding-out elements for foods; whereby to the whole can be added ions or colloidal or pseudocolloidal particles in nearly inverse proportions with regard to the respective atomic weights in order to re-establish biochemical equilibrium and according to the purpose for which the food is intended.

As animal food, the product obtained can be associated with lysates of cultures of microbes or fungi, which are dried at low temperature so as to ensure the recovery and use of the enzymatic elements.

Also as food for humans and animals, the product can be fixed to dried yeasts of beer, wood, bread, whey, etc.

For food for humans and animals as well, the product can be fixed to dried organic extracts that are obtained from various animals.

Particularly for food for humans, the product can be fixed to autolysates of yeast, milk casein, various creams,

particularly soy; or proteolysates of animal blood, whereby the product comes in the form of a liquid or a paste.

The procedure for fabricating the product that is the object of the invention can be developed in various ways, depending on whether the intention is to obtain the product in the form of a solution or in dry form, or as an irradiated product. In special cases colloidal solutions can be prepared by electrochemical or chemical means, particularly for products that are intended as food for animals or humans.

In the case where production is done by chemical means, it is possible to take advantage of the action of weak organic acids (glutamic acid, nucleic acid, etc.).

To prepare products that are intended as food for the soil and in the form of solutions, methods of colloidal pulverization, by means of a colloidal mill, may be used.

To obtain products in the dry state, the starting product is mixed with one of the above-mentioned substrates, and the mixture is then dried in a vacuum or in a furnace, at a temperature of 60°C, and then pulverized.

In the case where the substrate consists of yeasts, which are rich in sterols and where the product is intended as animal feed, it can be subjected to ultraviolet irradiation after undergoing drying and pulverization, so as to ensure the production of vitamin D2.

Clearly, other approaches can also be adopted, and thus also the specific characteristics of the products obtained, taken separately or together with the various support measures

indicated above, may be modified in various ways depending on the different approaches that are convenient and/or required in production, application, and use, all without exceeding the scope of this invention, whereby it should be understood that any equivalent product or procedure and thus any industrial results that are obtained on the basis of the above-detailed innovative concepts and that exhibit one or more of the characteristics specified in the following claims may fall within the scope of the privative industrial patent application.

Below, using simplified and non-limiting and non-binding examples, is presented the standard composition of a powdered food for humans that contains:

78-82 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

9-11 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

9-11 parts per hundred by weight of methionine with the addition of excipients.

The standard composition of the same food that is made in the form of compresses is the following:

about 45 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

about 5 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

about 5 parts per hundred by weight of methionine;

with the addition of:

about 2 parts per hundred by weight of magnesium stearate;

about 43 parts per hundred by weight of lactose.

Finally, the standard composition of the same food that is also to be made in the form of dragees is the following:

about 28 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

about 3.1 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

about 3.1 parts per hundred by weight of methionine;

with the addition of:

about 6.2 parts per hundred by weight of corn amide;

about 1.2 parts per hundred by weight of magnesium carbonate;

about 1.2 parts per hundred by weight of gum arabic;

about 0.05 part per hundred by weight of coloring E 110;

about 57.15 parts per hundred by weight of sugar.

The inventor suggests using a deoxyribonucleic acid such as a native extract of plant or animal substances or microorganisms belonging to the following group:

- yeasts or molds;
- salmon sperm;
- extract of the phage of the colibacillus;
- extract from the lysate of bacteria of the family of colibacilli and enterococci such as:

a) human eubiotic bacterial flora;

b) Escherichia coli;

c) bacillus acidophillus;

d) bacillus bifidus.

To further improve the organoleptic qualities of a food according to the invention, the inventor also calls for adding to it an amount of between 10% and 50% of the weight of the food itself of pure lyophilized biological wheat grass juice or lyophilized blue-green algae of the species Alphanizamenon Flos-Aquae.

Claims

1. Biochemical procedure for preparing elements for the soil, for plants, for animals, and for humans, characterized by: the starting material is a cultivated symbiont element or a culture broth such as bacteria or mold, from which element is extracted a product with enzymatic powers with which are autolysated the raw materials which will serve either as foods or as rounding-out elements for foods, whereby to the whole can be added ions or colloidal or pseudocolloidal particles in nearly inverse proportions with regard to the respective atomic weights in order to re-establish biochemical equilibrium and according to the purpose for which the food is intended.

2. Biochemical procedure for preparing a powdered food for humans according to Claim 1, in which said symbiont element that is cultivated in a culture broth is the characteristic symbiont of wheat perisperm and wheat germ, whereby the latter two are subjected to autolytic fermentation in a filtrate of said culture broth and the product resulting from said autolytic fermentation is then mixed with a sodium salt of deoxyribonucleic acid and with methionine and is finally dried at 60°C and pulverized.

3. Procedure according to Claim 2, in which the deoxyribonucleic acid is of the native type and is extracted from plant or animal substances or microorganisms belonging to the following group:

- yeasts or molds;
- salmon sperm;

- extract of the phage of the colibacillus;

- extract from the lysate of bacteria of the family of colibacilli and enterococci such as:

a) human eubiotic bacterial flora;

b) Escherichia coli;

c) bacillus acidophillus;

d) bacillus bifidus.

4. Nutritional rounding-out substance for preparing foods for the soil, plants, animals, and humans, characterized by animal and/or plant tissues that are reduced by autolysis with the aid of enzymatic liquors that are obtained by the procedure according to one of the preceding claims, with the addition of ions or colloidal or pseudocolloidal particles in nearly inverse proportions with regard to the respective atomic weights, depending on the substrates to which said substance is added for the purpose of forming said foods that are intended for the soil, for plants, for animals, or for humans.

5. Powdered food for humans, extracted according to the procedure of one of claims 2 or 3, characterized by the fact that it contains:

78-82 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

9-11 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

9-11 parts per hundred by weight of methionine with the addition of excipients.

6. Powdered food according to Claim 5, produced in the form of compresses and composed of:

about 45 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

about 5 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

about 5 parts per hundred by weight of methionine;

with the addition of:

about 2 parts per hundred by weight of magnesium stearate;

about 43 parts per hundred by weight of lactose.

7. Powdered food according to Claim 5, produced in the form of dragees and composed of:

about 28 parts per hundred by weight of autolysate of wheat perisperm and wheat germ;

about 3.1 parts per hundred by weight of sodium salt of deoxyribonucleic acid;

about 3.1 parts per hundred by weight of methionine;

with the addition of:

about 6.2 parts per hundred by weight of corn amide;

about 1.2 parts per hundred by weight of magnesium carbonate;

about 1.2 parts per hundred by weight of gum arabic;

about 0.05 part per hundred by weight of coloring E 110;

about 57.15 parts per hundred by weight of sugar.

8. Powdered food according to one of Claims 5, 6, or 7 to which is added a quantity of between 10% and 50% of the weight of the food itself of pure lyophilized biological wheat grass juice.

9. Powdered food according to one of Claims 5, 6, or 7 to which is added a quantity of between 10% and 50% of the weight of the food itself of lyophilized blue-green algae of the species Alphanizamenon Flos-Aquae.

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INTERNATIONAL SEARCH REPORT

Interr. al Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A23L1/03 A23K1/165 C05F11/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A23L A23K C05F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 17 92 630 A (I.B.C.-PANBIOS TRUST REG.) 9 March 1972	1-9
Y	see description and claims	1-9

X	DATABASE WPI Section Ch, Derwent Publications Ltd., London, GB; Class D13, AN 72-34152T XP002031257 & JP 47 017 828 B (KIKKOMAN SHOYU CO LTD)	1,4
Y	see abstract	1-9

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
21 May 1997	05.06.97

Name and mailing address of the ISA	Authorized officer
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INTERNATIONAL SEARCH REPORT

Intern al Application No
PCT/IB 97/00105

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category '	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 7415 Derwent Publications Ltd., London, GB; Class D11, AN 74-28167V XP002031258 & JP 49 011 427 B (NISSHIN FLOUR MILLING CO) , 16 March 1974	1,4
Y	see abstract	1-9
X	GB 1 151 236 A (AJINOMOTO CO. INC.) 7 May 1969	1,4
Y	see page 1, line 86 - page 2, line 28; examples 1-5	1-9

Form PCT ISA 210 (continuation of second sheet) (July 1992)